REMARKS

The Examiner's Action mailed on January 22, 2008, has been received and its contents carefully considered.

In this Amendment, Applicants have cancelled claim 1 without prejudice and amended claims 2, 3, 5 and 6. Claim 3 is the sole independent claim, and claims 2-7 remain pending in the application. For at least the following reasons, it is submitted that this application is in condition for allowance.

Claim 6 was objected to for an informality and has been corrected accordingly. It is therefore respectfully requested that this objection be withdrawn.

Claims 5-7 were rejected under 35 USC §112, §2, as indefinite and have been corrected accordingly. This rejection is therefore respectfully traversed.

Claims 1 and 2 were rejected under 35 USC §102(b) as anticipated by *Kane* (US 4,381,566). This rejection is respectfully moot, as claim 1 has been cancelled and claim 2 now depends from claim 3.

Claims 3 and 4 were rejected under 35 USC §103(a) as obvious over the combination of *Kane* with *Holshouser et al.* (US 6,229,489 B1). This rejection is respectfully traversed.

In an antenna according to claim 3, the first antenna element and the second antenna element are electrically connected to each other in series and are arranged such that transmission/reception in a first frequency band is enabled by further connecting them to a feeding part through the tuning circuit connected in series thereto, such that transmission/reception can be performed in a second

frequency band which is different from the first frequency band by connecting only the first antenna element directly to the feeding part without the tuning circuit being interposed therebetween.

In other words, in this arrangement, while using a wide band radiation element, to which the tuning circuit is connected in series, signals of the second frequency band other than the first frequency band can he transmitted/received without the tuning circuit being interposed therebetween.

More particularly, claim 3 recites that "the radiation element comprises a first antenna element and a second antenna element connected to each other electrically in series, the first antenna element and the second antenna element being connected to a feeding part through the tuning circuit, and being formed in an electric length so as to resonate at a frequency within the desired frequency band by the total length, and *so as to resonate at a first frequency band of a wide band in the desired frequency band with the tuning circuit*, and a connecting part of the first antenna element and the second antenna element being directly connected to the feeding part without the tuning circuit, *so as to resonate at a second frequency band, which is different from the first frequency band, by only the first antenna element*".

In contrast, *Kane* discloses a dipole antenna using a pair of distributed constant inductance elements, and considers the impedance of the whole antenna.

The Office Action admits that *Kane* fails to teach "the radiation element comprises a first antenna element and a second antenna element connected to each other electrically in series, the first antenna element and the second antenna element being formed in an electric length so as to resonate at a frequency within the desired frequency band by the total length, and so as to resonate at a first frequency band of a wide band in the desired frequency band with the tuning circuit, and so as to resonate at a second frequency band by only the first antenna element", and relies upon *Holshouser et al.* to supply this deficiency.

In *Holshouser et al.* the antenna **10** is adjusted to operate as a half-wave monopole antenna in the extended position, and in the retracted position the helical coil **17** of the antenna **10** performs as a quarter-wave monopole antenna (column 4, lines 16-23).

> Accordingly, in the extended position, the antenna **10** performs as a half-wave monopole with a small series reactance at 800 MHz and as a half-wave monopole at 1900 MHz. In the retracted position, the helical coil **17** of the antenna **10** performs as a quarter-wave monopole at 800 MHz and as a quarter-wave monopole at 1900 MHz with the parasitic element **18**. In the retracted position as illustrated in FIG. 5, the linear rod **12** is effectively electrically disconnected from the helical coil so that energy is not permitted to leak down the linear rod and be absorbed by the radiotelephone user's hand. Accordingly, the present invention can provide a radiotelephone antenna with half-wave monopole performance at 800 MHz and half-wave monopole performance at 1900 MHz without requiring a complex mechanical structure.

In other words, irrespective of whether it operates as a whole including the helical coil **17** and the linear rod **12** or with the helical coil **17** alone, the same two frequency bands are used (both 800 and 1900 MHz), which therefore differs from

the antenna of the present invention, where the antenna resonates at different frequency bands when both elements are fed through the tuning circuit and when only the first antenna element is employed.

That is, *Holshouser et al.* also fails to teach or suggest a variable tuning antenna with first and second antenna elements in series and formed "so as to resonate at a first frequency band of a wide band in the desired frequency band with the tuning circuit" and "so as to resonate at a second frequency band, *which is different from the first frequency band*, by only the first antenna element" (*emphasis added*) as recited in claim 3.

Therefore *Kane* and *Holshouser et al.*, whether taken separately or in combination, fail to teach or suggest all the features recited in claim 3. Thus, claim 3 is allowable, together with claims 2 and 4-7 that depend therefrom.

Claims 5 and 6 were rejected under 35 USC §103(a) as obvious over the combination of *Kane* with *Holshouser et al.* and *Ryou et al.* (US 7,132.998 B2). This rejection is respectfully traversed.

Claim 5 depends from claim 3, and as *Ryou et al.* fails to remedy the deficiencies of *Kane* and *Holshouser et al.* with respect to claim 3, claim 5 is also allowable. Claim 6 depends from claim 5, and is therefore allowable for at least the same reasons that claim 5 is allowable.

Ryou et al. discloses a triple band antenna, but the Office Action does not allege that *Ryou et al.* discloses a variable tuning antenna with first and second antenna elements in series and formed "so as to resonate at a first frequency

band of a wide band in the desired frequency band with the tuning circuit" and "so as to resonate at a second frequency band, *which is different from the first frequency band*, by only the first antenna element" (*emphasis added*) as recited in claim 3.

Claim 6 recites a specific structural example in which an antenna according to a preferred embodiment of the invention is applied to a portable wireless device. Concrete coupling structures are recited in which connection with the feeding part is established through the tuning circuit, and also in which connection is established without the tuning circuit. None of the cited references discloses the combination of an antenna having a tuning circuit which has a wide band and an antenna which performs as a different frequency band using only a first antenna element which is a part of the wide band antenna.

Claim 6 is therefore also allowable for at least the above additional reason.

Claim 7 was rejected under 35 USC §103(a) as obvious over the combination of *Kane* with *Holshouser et al.*, *Ryou et al.* and *Kanayama et al.* (US 5,861,859). This rejection is respectfully traversed.

Kanayama et al. discloses two helical antennas. However, when the antenna assembly **12** is extended from the housing body **2**, the rod antenna **11A** and the helical antenna **11B** are serially connected and operate as a single antenna, and when the antenna assembly **12** is in the retracted state, the second helical antenna **12A** and the helical antenna **11B** on the main body side are

serially connected and operate as a single antenna. That is, it is neither disclosed nor suggested in the above reference to operate the two helical antennas **11A** and **12A** individually in the same frequency band.

Therefore, none of the cited references, whether taken separately or in combination, teach or suggest a variable tuning antenna with first and second antenna elements in series and formed "so as to resonate at a first frequency band of a wide band in the desired frequency band with the tuning circuit" and "so as to resonate at a second frequency band, *which is different from the first frequency band*, by only the first antenna element" (*emphasis added*) as recited in claim 3.

Claim 7 also depends indirectly from claim 3, and as *Ryou et al.* and *Kanayama et al.* fail to remedy the deficiencies of *Kane* and *Holshouser et al.* with respect to claim 3, claim 7 is also allowable for at least the reasons that claim 3 is allowable.

It is submitted that this application is in condition for allowance. Such action and the passing of this case to issue are requested.

Should the Examiner feel that a conference would help to expedite the prosecution of this application, the Examiner is hereby invited to contact the undersigned counsel to arrange for such an interview.

Should any fee be required, however, the Commissioner is hereby authorized to charge the fee to our Deposit Account No. 18-0002, and advise us accordingly.

Respectfully submitted,

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Date

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